

Tuberculosis

Testing and Treatment

What is tuberculosis (TB)?

TB is an infectious disease caused by the bacteria *Mycobacterium tuberculosis*. TB disease most often affects the lungs but can occur anywhere in the body. Some types of TB disease are contagious; some are not. TB diseases of the lung or larynx are contagious and are spread to others by coughing and sneezing.

What are the symptoms of TB disease?

Common symptoms include:

- ◆ Cough
- ◆ Fever
- ◆ Fatigue
- ◆ Weight loss
- ◆ Night sweats

Early in the illness, a person with active TB disease may have mild or no symptoms; however, the person is still contagious.

What is the difference between TB infection and TB disease?

In TB infection, or Latent TB infection (LTBI), the bacteria is in the body but the body's immune defenses have made the bacteria "inactive." A person with TB infection may have a "positive" TB skin test (PPD) or blood test (QFT-G) and a normal chest x-ray. This person has no symptoms of TB and cannot spread it to others. However, this TB infection may become "active" at a later time giving the person TB disease. Following a "positive" PPD and chest x-ray, a person will be offered medication to prevent progression from Latent TB infection to active TB disease.

In TB disease the bacteria has become active making the person sick; and the bacteria can spread to others. A person with TB disease has a 'positive' TB skin test (PPD) or blood test (QFT-G), an abnormal (usually) chest x-ray, and the symptoms of TB listed above. A person with TB disease must take medication to become well.

Who is at risk for TB infection?

- ◆ Persons who have lived or traveled to countries

where TB is frequent

- ◆ Persons living or working in congregated or congested living facilities, such as hospitals, nursing homes, prisons
- ◆ Persons with certain illnesses or diseases (certain cancers, diabetes, HIV, transplant recipients, and those taking certain medications.)

Who is at risk of progressing from Latent TB infection to disease?

- ◆ Persons who have recently contracted the infection: The risk of becoming active is much higher the first two years (as high as 30%) after contracting the infection. The risk is about 10% throughout a lifetime.
- ◆ Persons with certain illnesses: HIV, silicosis, or on immunosuppressant medications.
- ◆ Persons who are underweight or malnourished.

Who should be tested for TB?

Only persons with risk factors. All Virginia Tech students are required to complete a TB Risk Assessment. Those who have risks must receive a TB skin test (PPD) or blood test (QFT-G) within one year prior to admission to Virginia Tech. If a person has had a "positive" PPD, complete with millimeter reading, the PPD should not be repeated.

TB blood tests: TB blood tests (also called interferon-gamma release assays or IGRAs) measure how the immune system reacts to the bacteria that cause TB, by testing the person's blood in a laboratory.

Two IGRAs are approved by the U.S. Food and Drug Administration (FDA) and are available in the United States:

1. QuantiFERON®-TB Gold In-Tube test (QFT-GIT)
 2. T-SPOT®.TB test (T-Spot)
- ◆ **Positive IGRA:** This means that the person

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has been infected with TB bacteria. Additional tests are needed to determine if the person has latent TB infection or TB disease. A health care worker will then provide treatment as needed.

- ◆ **Negative IGRA:** This means that the person's blood did not react to the test and that latent TB infection or TB disease is not likely.

IGRAs are the preferred method of TB infection testing for the following:

- ◆ People who have received bacille Calmette-Guérin (BCG). BCG is a vaccine for TB disease.
- ◆ People who have a difficult time returning for a second appointment for reading the reaction to the TST. There is no problem with repeated IGRAs.

If I have received BCG, do I still need the TB test? Am I protected against getting TB?

BCG (Bacilli-Calmette-Guerin vaccine) is given to babies and children in countries with prevalent tuberculosis. This protection lasts only 10-15 years. A history of BCG may cause some skin reaction with the TB skin test. However, there is no way to determine if the reaction is a result of the BCG or an exposure to (active) TB disease. Therefore:

- ◆ If you had BCG as a child, you are no longer protected against TB.
- ◆ If you had BCG and have risk factors, you still need a TB test to rule out exposure to TB.
- ◆ If you had BCG, you may still need to take medication.

What is a TB skin test (PPD)?

The PPD fluid is injected under the skin of the forearm. The area must be checked within 48-72 hours (2-3 days) by the healthcare worker. If there is a reaction, it will be measured in millimeters. The test outcome (positive or negative) will be determined by the size of the reaction. The risk factors for TB are taken under consideration for determining if treatment is needed. This test will usually be positive in both TB infection and TB disease.

What happens next if my TB test is positive?

Following a positive blood/skin test, the person

must receive a chest x-ray and possibly be asked to submit sputum (mucous that has been coughed up from the lungs) for testing. If it is determined the person has TB infection, you will be offered a medication to help prevent the infection from becoming TB disease. If it is determined the person has active TB disease, the Montgomery County Health Department is notified and directs the proper care. The Schiffert Health TB nurse will meet with you along with the nurse from the health department and discuss all options for treatment medications.

Is medication necessary for TB infection?

Schiffert Health TB nurse will meet with you and discuss treatment options. Isoniazid (INH) is one medication for Latent TB infection to reduce the risk of TB infection turning into active TB disease. It is taken daily for 6 months. Direct observation therapy (DOT) is another option with shorter duration. The student meets with the TB nurse 3 times/week for 3 months to take rifapentin and isoniazid. The TB nurse will explain all options and work with you to decide which medication is best for you. The medications are provided free to Virginia Tech students. When the treatment is completed, a certificate is given to the person to keep with their record of a positive QFT-G/PPD and chest x-ray. This can be used to show completion of treatment following a positive PPD in the event the person is requested to submit to future TB skin tests.

The Schiffert Health Center TB program complies with the guidelines set by the US Center for Disease Control, World Health Organization and the Montgomery County Health Department. More information can be found at: www.cdc.gov